ABSTRACT

The object of the present invention is to provide an α-isomaltosylglucosaccharide-forming enzyme, process of the same, cyclotetrasaccharide, and saccharide composition comprising the saccharide which are obtainable by using the enzyme; and is solved by establishing an α-isomaltosylglucosaccharide-forming enzyme which forms a saccharide, having a glucose polymerization degree of at least three and having both the α-1,6 glucosidic linkage as a linkage at the non-reducing end and the α-1,4 glucosidic linkage other than the linkage at the non-reducing end, by catalyzing the α-glucosyl-transfer from a saccharide having a glucose polymerization degree of at least two and having the α-1,4 glucosidic linkage as a linkage at the non-reducing end without substantially increasing the reducing power; α-isomaltosyl-transferring method using the enzyme; method for forming α-isomaltosylglucosaccharide; process for producing a cyclotetrasaccharide having the structure of cyclo{→6)-α-D-glucopyranosyl-(1→3)-α-D-glucopyranosyl-(1→6)-α-D-glucopyranosyl-(1→3)-α-D-glucopyranosyl-(1→} using both the α-isomaltosylglucosaccharide-forming enzyme and the α-isomaltosyl-transferring enzyme; and the uses of the saccharides obtainable therewith.